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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------------------------------------|-------------|----------------------|------------------------------|------------------|
| 10/056,777 | 01/24/2002 | Lev Bromberg | 01064 | 4587 |
| 7590 05/18/2004 | | | | |
| Michelle B. Lando, Esq. CABOT CORPORATION Law Department 157 Concord Road Billerica, MA 01821 | | | EXAMINER SHOSHO, CALLIE E | |
| | | | ART UNIT 1714 | PAPER NUMBER |

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/056,777 | | BROMBERG, LEV | |
| | Examiner | | Art Unit | |
| | Callie E. Shosho | | 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1,2,6,7,9,10 and 12-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 38-41 is/are allowed.
- 6) ☒ Claim(s) 1,2,6,7,9,10,12-19,21-24 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 20,25 and 29-37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 3/2/04.

In light of the new grounds of rejection set forth below with respect to Grezzo-Page et al. (U.S. 5,708,095), the following action is non-final.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-2, 6-7, 9-10, 12-19, 21-24, and 26-28 rejected under 35 U.S.C. 102(b) as being anticipated by Grezzo Page et al. (U.S. 5,708,095).

Grezzo Page et al. disclose ink jet ink comprising aqueous liquid vehicle, carbon black modified with carboxylic acid, and 0.1-30% hydrophobically modified polyelectrolyte, i.e. graft copolymer which comprises macromonomer side chains obtained from styrene and ethoxytriethyleneglycol methacrylate and backbone obtained from (meth)acrylic acid and ethyl acrylate. The graft copolymer has molecular weight of 1000-100,000. It is further disclosed that the pigment binds to the graft copolymer. There is also disclosed a method of generating an image comprising incorporating the ink into ink jet printer, jetting the ink onto substrate, and generating an image (col.2, line 54-col.5, line 21, col.6, line 35, col.6, line 61-col.7, line 3, and col.7, lines 7-15).

In light of the above, it is clear that Grezzo Page et al. anticipate the present claims.

Response to Arguments

4. Applicants' arguments regarding Shields et al. (U.S. 5,476,540), Sacripante et al. (U.S. 5,989,325), EP 1148104, WO 00/37168, and Maeda et al. (U.S. 5,969,740) have been fully considered but they are moot in view of the discontinuation of the use of these references against the present claims.

5. Applicants' arguments filed 3/2/04 have been fully considered but, with the exception of arguments relating to Shields et al., Sacripante et al., EP 1148104, WO 00/37168, and Maeda et al., they are not persuasive.

Specifically, applicants argue that :

(a) there is no disclosure in Grezzo-Page et al. of modified pigment comprising pigment having attached at least one organic group.

(b) The dispersant of Grezzo-Page et al. is not a hydrophobically modified polyelectrolyte gelling agent as required in present claims.

(c) There is no gellation of the dispersant described Grezzo-Page et al.

With respect to argument (a), it is noted that col.7, lines 1-2 and 5-7 of Grezzo-Page et al. disclose the use of pigments modified to comprise functional groups on the surface wherein the functional groups include acidic group such as carboxylic acid.

With respect to argument (b), applicants argue that the dispersant of Grezzo-Page et al. is not a hydrophobically modified polyelectrolyte as required in the present claims and described in paragraphs 44-48 and 68-69 of the present specification.

However, it is noted that claims 1 and 28 only broadly require hydrophobically modified polyelectrolyte. There is no requirement of specific types of hydrophobically modified polyelectrolyte. As set forth in paragraphs 47-49 of the present specification, one type of hydrophobically modified polyelectrolyte is a block or graft polymer that comprises at least one hydrophobic monomer unit such as alkyl (meth)acrylate, ionic monomer unit such as (meth)acrylic acid, and hydrophilic monomer unit such as ester of (meth)acrylic acid comprising alkyleneoxide group. Given that Grezzo-Page et al. disclose graft copolymer which comprises macromonomer side chain obtained from ethoxytriethyleneglycol methacrylate, i.e. hydrophilic monomer unit, and backbone obtained from (meth)acrylic acid, i.e. ionic monomer unit, and ethyl acrylate, i.e. hydrophobic monomer unit, it would appear that Grezzo-Page et al. meet the claimed requirement of hydrophobically modified polyelectrolyte based on the definition of the hydrophobically modified polyelectrolyte found in the present specification. While there is no disclosure of some of the specific types of hydrophobically modified polyelectrolyte as set forth in paragraph 46 of the present specification, it is noted that there is no requirement in the present claims regarding these specific hydrophobically modified polyelectrolyte. Given that present claims 1 and 28 only broadly require use of hydrophobically modified polyelectrolyte and given that Grezzo-Page et al. disclose use of graft copolymer which appears to meet the definition of hydrophobically modified polyelectrolyte as set forth in the present specification, it is the

examiner's position that Grezzo-Page et al. meet the requirements of the present claims regarding the hydrophobically modified polyelectrolyte.

With respect to argument (c), it is agreed that there is no disclosure in Grezzo-Page et al. regarding gellation of the dispersant. However, it is noted that the present claims are drawn to ink jet ink or method of generating a printed image not a process of gellation. That is, there is no requirement in any of the present claims that gellation actually occur only that the ink comprise a gelling agent. Given that Grezzo-Page et al. disclose the use of dispersant that is hydrophobically modified polyelectrolyte gelling agent (see argument (b) above), it is the examiner's position that Grezzo-page et al. meet the requirements of the present claims.

Allowable Subject Matter

6. Claims 38-41 are allowable over the "closest" prior art Grezzo-Page et al. (U.S. 5,708,095) given that there is no disclosure or suggestion in Grezzo-Page et al. of (i) method comprising incorporating into printing apparatus ink jet ink comprising liquid vehicle and colorant which is modified pigment having attached organic group, incorporating into printing apparatus gelling agent composition comprising liquid vehicle and gelling agent which is hydrophobically modified polyelectrolyte, jetting ink and gelling agent composition onto substrate, and generating image or (ii) method comprising incorporating into printing apparatus ink comprising liquid vehicle and colorant which is modified pigment having attached organic group and jetting the ink onto substrate which comprises gelling agent that is hydrophobically modified polyelectrolyte.

7. Claims 20, 25, and 29-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 20 and 25 would be allowable if rewritten in independent form as described above given that there is no disclosure or suggestion in the "closest" prior art Grezzo-Page et al. (U.S. 5,708,095) of gelling agent which has weight average molecular weight of 300,000-1,500,000 or of gelling agent which is incorporated into second jettable composition.

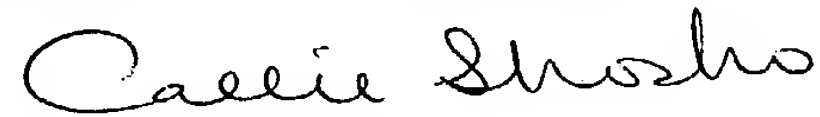
Further, claims 29-37 would be allowable if re-written in independent form given that there is no disclosure or suggestion in Grezzo-Page et al. of method of incorporating into printing apparatus ink jet ink comprising liquid vehicle, colorant, and gelling agent, jetting the ink, and generating image onto substrate wherein the method further comprises the step of (i) jetting a gelling composition or (ii) increasing temperature to cause gelling of the image or to evaporate a portion of the liquid vehicle to cause gelling of the image.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
5/17/04